CLAIMS

1. An enzyme derived from a microbe belonging to a genus selected from the genus *Empedobacter* and the genus *Sphingobacterium*, and having the ability to form a peptide from a carboxy component and an amine component.

2. An enzyme having the ability to form a peptide from a carboxy component and an amine component and the ability to form L-alanyl-L-glutamine at a formation rate of 0.03 mM/min or more in a dipeptide-forming reaction under conditions (i) to (iv):

(i) the carboxy component is L-alanine methyl ester hydrochloride in an amount of 100 mM;

(ii) the amine component is L-glutamine in an amount of 200 mM;

(iii) the pH is 9.0; and

(iv) the amount of homogeneously purified enzyme added is less than 0.61 mg/ml as protein amount.

3. The enzyme according to claim 1, wherein the carboxy component as a substrate includes both the amino acid ester and the amino acid amide.

4. The enzyme according to claim 1, wherein the amine component as a substrate includes any of an amino acid, a C-protected amino acid and an amine.

5. The enzyme according to claim 1, wherein the enzyme has the ability to form a peptide within a pH range of 6.5 to 10.5.

6. The enzyme according to claim 1, wherein the enzyme has the ability to form a peptide within a temperature range of 0 to 60°C.

7. The enzyme according to claim 1, wherein the enzyme is not inhibited by the serine enzyme inhibitor, phenylmethylsulfonyl fluoride, but is inhibited by the serine enzyme inhibitor, p-nitrophenyl-p'-guanidinobenzoate.

8. The enzyme according to claim 1, wherein the enzyme has a molecular weight as determined by SDS-gel electrophoresis of about 75 kilodalton, and a molecular weight as determined by gel filtration chromatography of about 150 kilodalton.

9. A microbe that produces an enzyme according to claim 1.

10. The microbe according to claim 9, wherein the microbe is selected from *Empedobacter brevis* strain FERM BP-8113 and *Sphingobacterium sp.* strain FERM BP-8124.

11. A method for producing a dipeptide comprising producing a dipeptide from a carboxy component and an amine component using an enzyme according to claim 1 or a substance containing the enzyme.

12. The enzyme according to claim 2, wherein the carboxy component as a substrate includes both the amino acid ester and the amino acid amide.

13. The enzyme according to claim 2, wherein the amine component as a substrate includes any of an amino acid, a C-protected amino acid and an amine.

14. The enzyme according to claim 2, wherein the enzyme has the ability to form a peptide within a pH range of 6.5 to 10.5.

15. The enzyme according to claim 2, wherein the enzyme has the ability to form a peptide within a temperature range of 0 to 60°C.

16. The enzyme according to claim 2, wherein the enzyme is not inhibited by the serine enzyme inhibitor, phenylmethylsulfonyl fluoride, but is inhibited by the serine enzyme inhibitor, p-nitrophenyl-p'-guanidinobenzoate.

17. The enzyme according to claim 2, wherein the enzyme has a molecular weight as determined by SDS-gel electrophoresis of about 75 kilodalton, and a molecular weight as determined by gel filtration chromatography of about 150 kilodalton.

18. A microbe that produces an enzyme according to claim 2.

19. The microbe according to claim 18, wherein the microbe is selected from *Empedobacter brevis* strain FERM BP-8113 and *Sphingobacterium sp.* strain FERM BP-8124.

20. A method for producing a dipeptide comprising producing a dipeptide from a carboxy component and an amine component using an enzyme according to claim 2 or a substance containing the enzyme.